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(54) **COMBUSTION LINER STOP BLOCKS HAVING INSERTABLE WEAR FEATURES AND RELATED METHODS**

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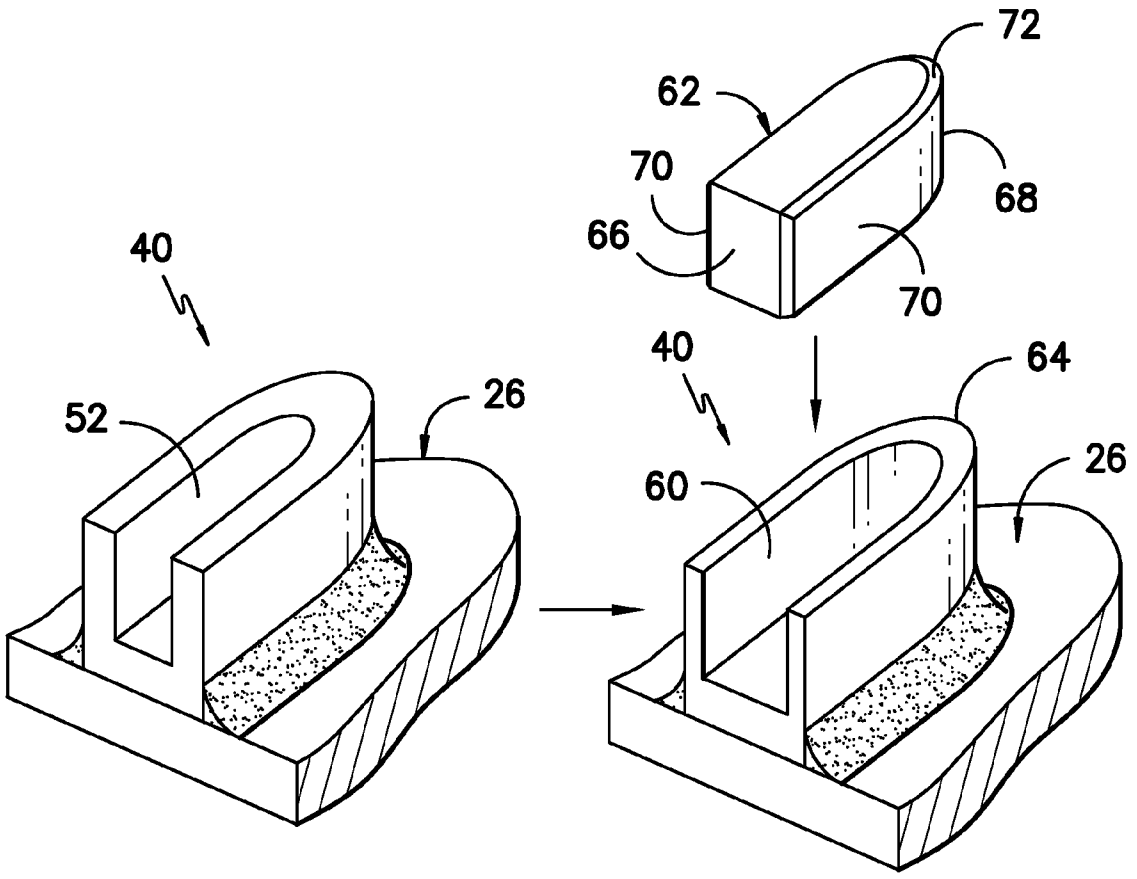
(57) **ABSTRACT**

A combustion liner stop block having insertable wear features and methods for installing wear features within a combustion liner stop block are disclosed. The methods may generally include enlarging a slot defined in the liner stop block to form a cavity, locating an insert block in the cavity and providing at least one wear feature associated with the insert block.



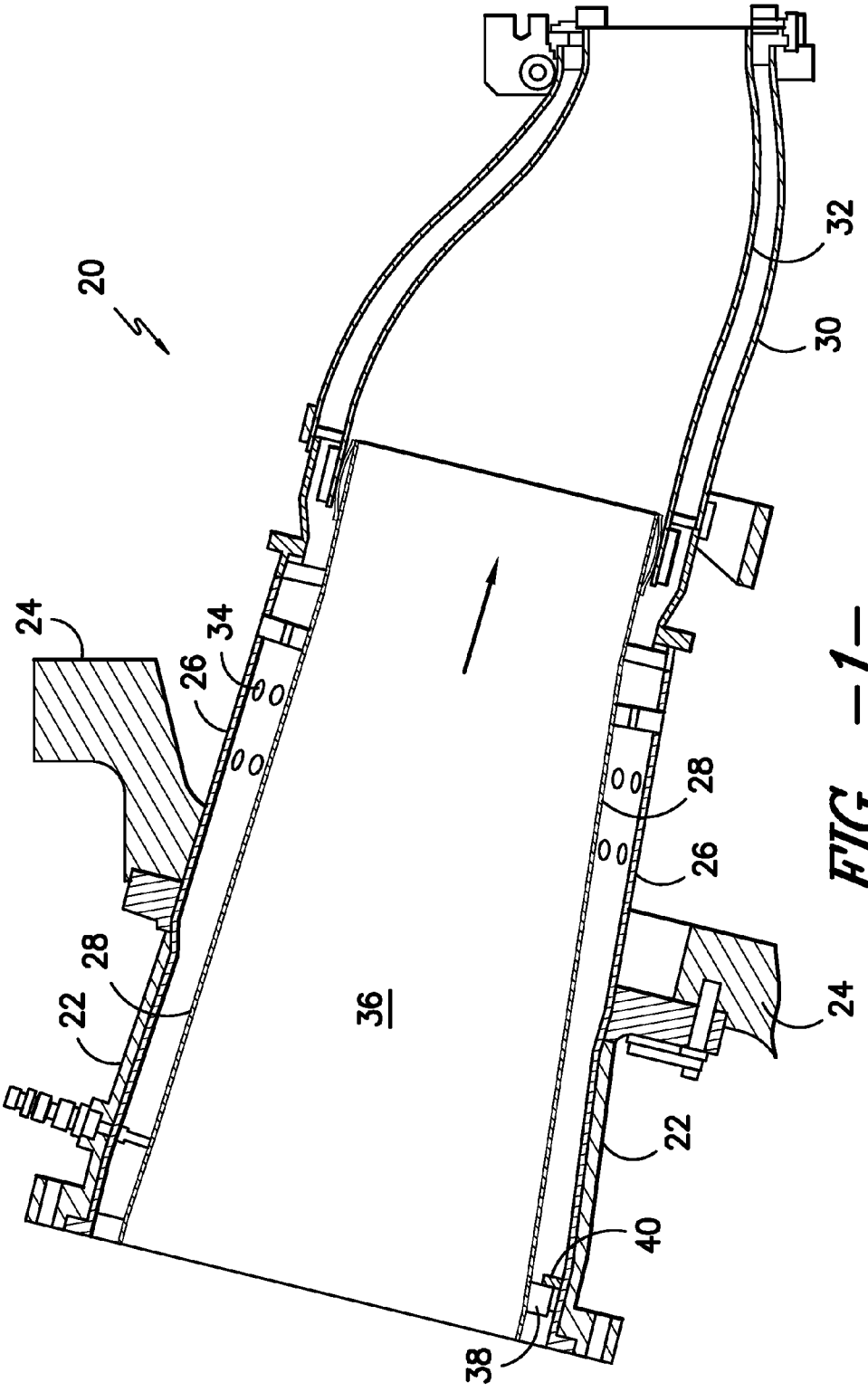


FIG. —1—
(PRIOR ART)

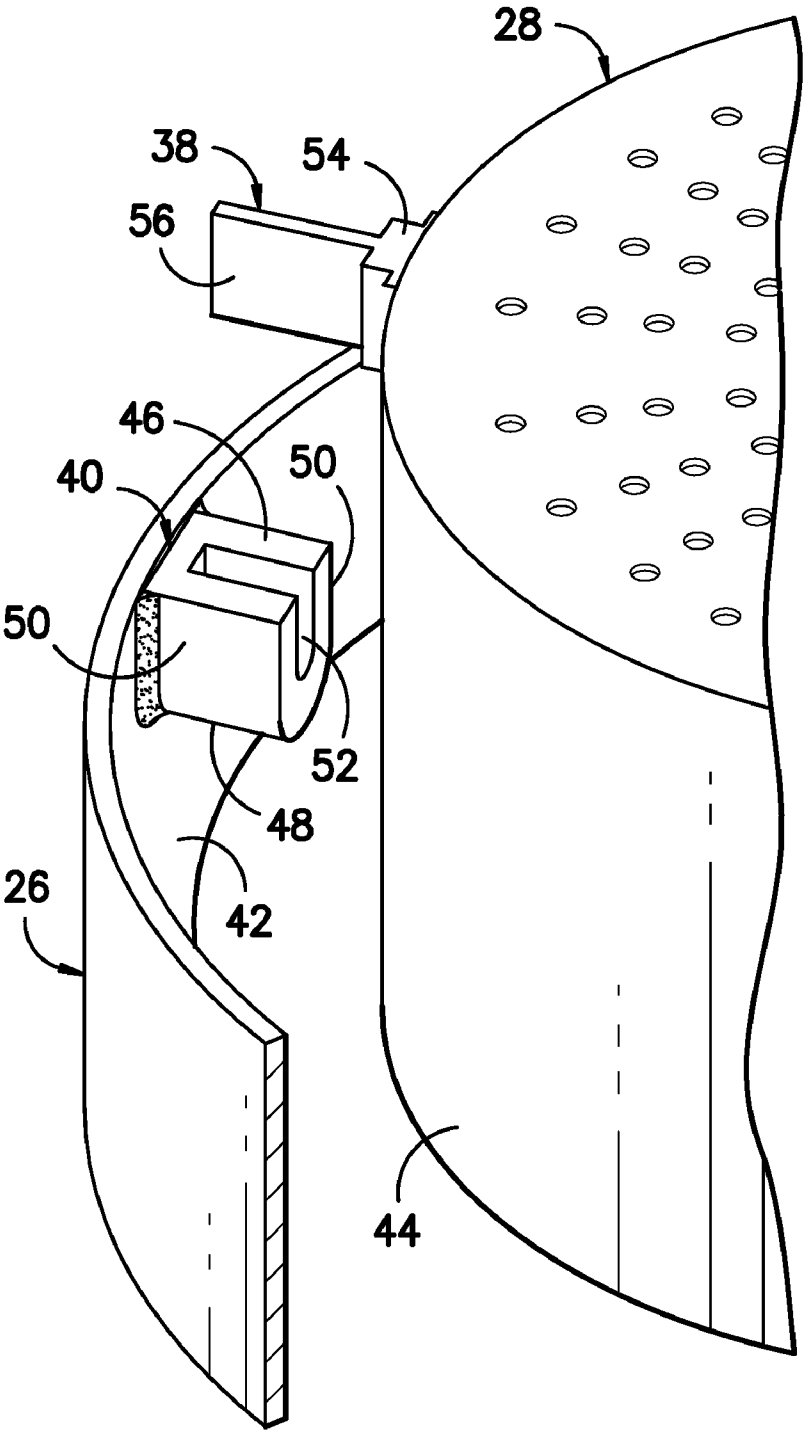


FIG. -2-

(PRIOR ART)

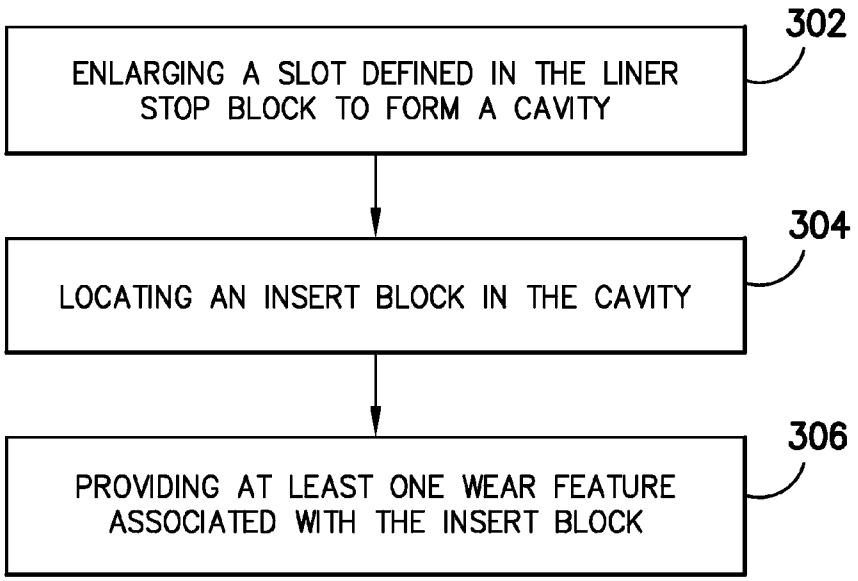

ENLARGING A SLOT DEFINED IN THE LINER STOP BLOCK TO FORM A CAVITY
302
LOCATING AN INSERT BLOCK IN THE CAVITY
304
PROVIDING AT LEAST ONE WEAR FEATURE ASSOCIATED WITH THE INSERT BLOCK
306

FIG. –3–

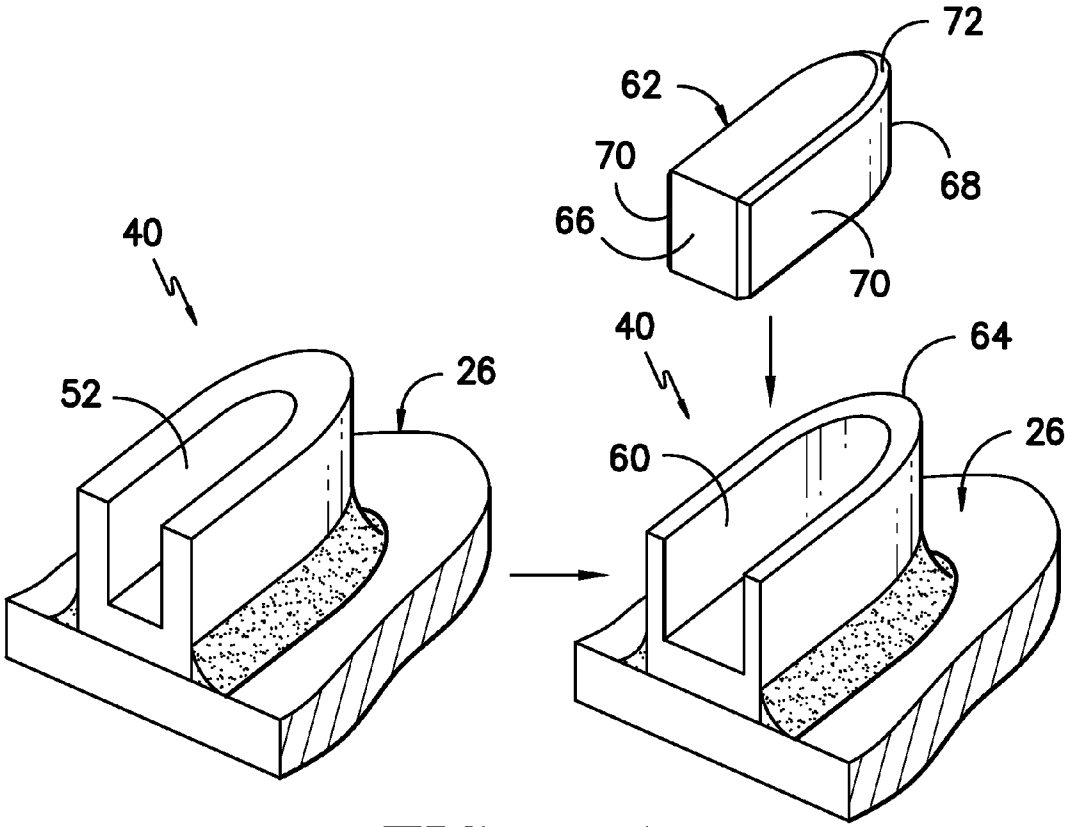

72
62
70
68
66
70
40
52
26
40
64
60
26

FIG. –4–

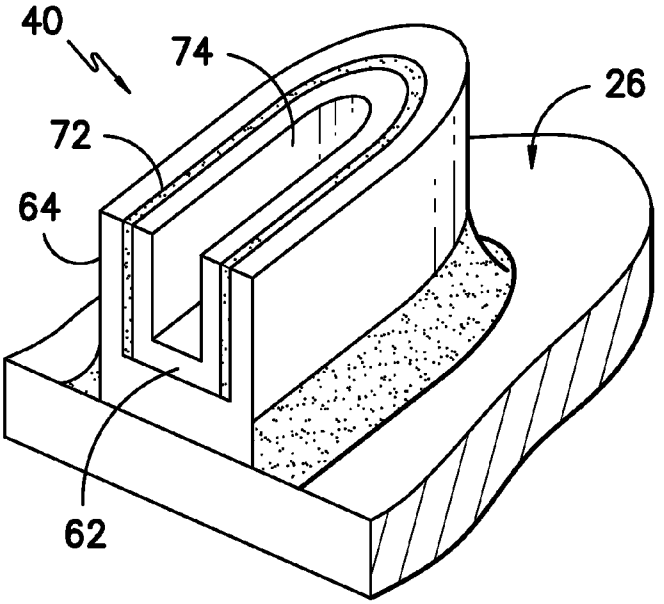


FIG. -5-

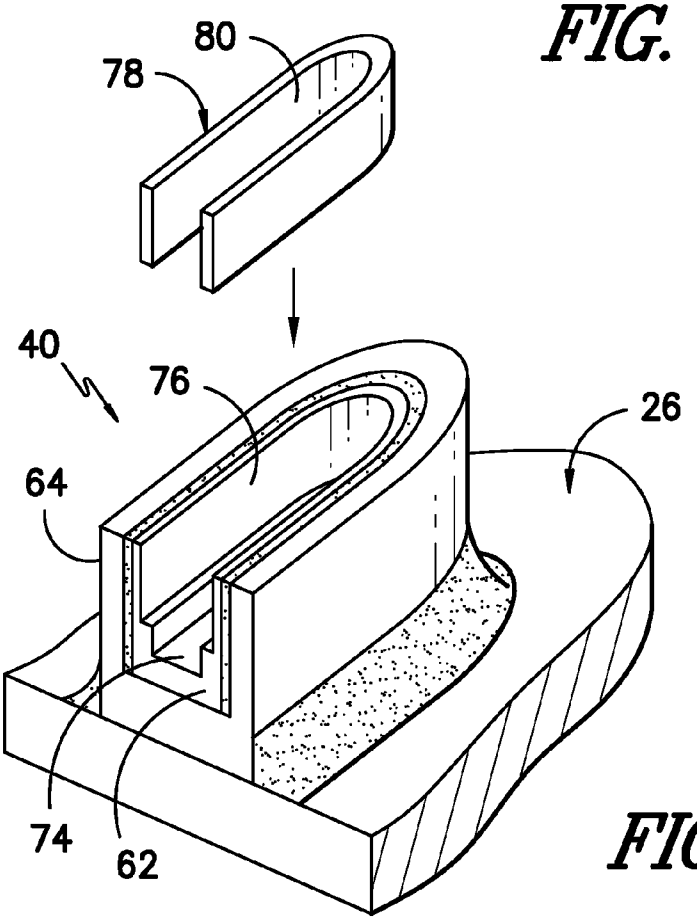


FIG. -6-

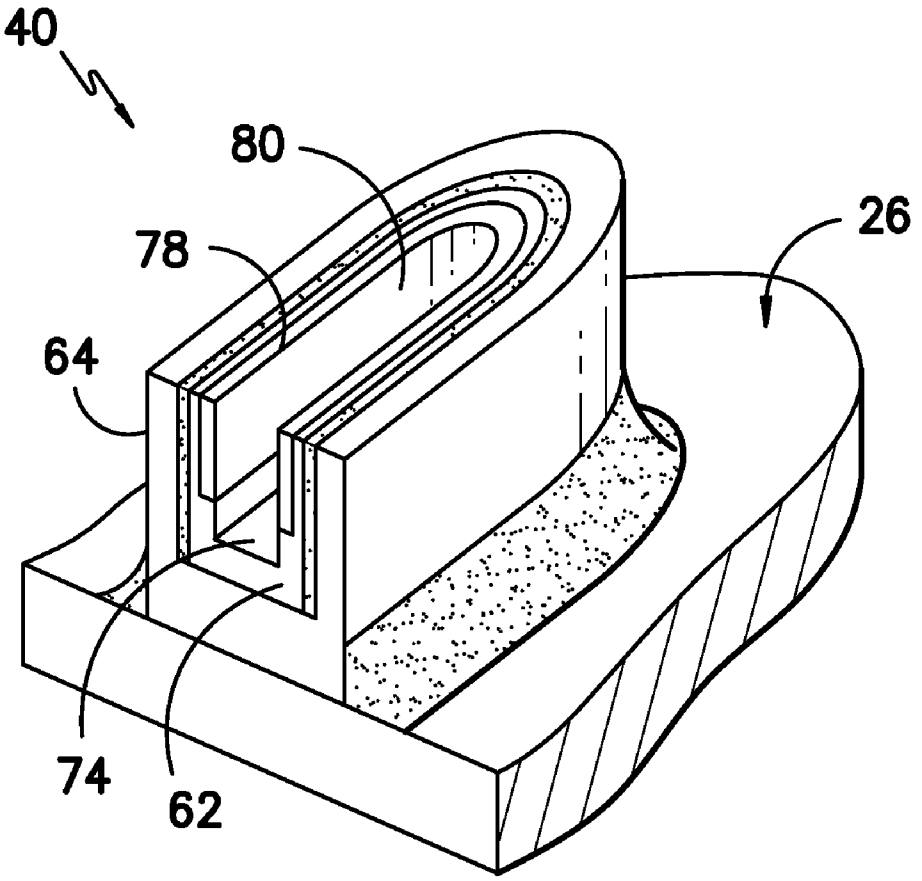


FIG. –7–

COMBUSTION LINER STOP BLOCKS HAVING INSERTABLE WEAR FEATURES AND RELATED METHODS

FIELD OF THE INVENTION

[0001] The present subject matter relates generally to combustion liner stops of gas turbine combustors and particularly to combustion liner stop blocks having insertable wear features and related methods.

BACKGROUND OF THE INVENTION

[0002] Gas turbines typically include a compressor section, a combustion section, and a turbine section. The compressor section pressurizes air flowing into the turbine. The pressurized air discharged from the compressor section flows into the combustion section, which is generally characterized by a plurality of combustors disposed around an annular array about the axis of the gas turbine. Each of the plurality of combustors includes a combustion liner, which defines the combustion chamber of the combustor. As such, air entering each combustor is mixed with fuel and combusted within the combustion liner. Hot combustion gases flow from the combustion liner through a transition piece to the turbine section of the gas turbine to drive the turbine and generate power.

[0003] The combustion liner of a gas turbine combustor is typically concentrically located within a flow sleeve of the combustor and radially inwardly spaced therefrom. The forward end of the combustion liner is generally provided with a plurality of circumferentially spaced liner stop tabs (i.e., male liner stops) which cooperate and/or mate with a corresponding number of liner stop blocks (i.e., female liner stops) secured to the flow sleeve or, in some embodiments, the combustion casing. As such, when the combustion liner is installed within the flow sleeve, the liner stops ensure proper radial and axial location of the combustion liner within the flow sleeve and also prevent the combustion liner from moving in an axially downstream direction (i.e., towards the transition piece).

[0004] The combustion liner stops generally support the combustion liner during the extreme vibration and heat produced by the combustion process occurring within the combustor. Often, vibration and thermal deformations resulting from combustion cause the combustion liner, the flow sleeve and other components of the combustor to vibrate and otherwise move with respect to one another. In particular, the combustion liner typically thermally deforms and vibrates with respect to the flow sleeve. As such, wear is often exhibited on the liner stops as a result of such deformation and/or vibration. This can lead to failure of the liner stop tab and/or the liner stop block, thereby resulting in misalignment of the combustion liner within the flow sleeve and/or damage to the combustion liner or flow sleeve.

[0005] To prevent such failure, it has been disclosed that the entire liner stop block of a combustor may be formed from a hardened alloy designed to reduce the amount of wear occurring between the liner stop block and the liner stop tab. However, to include such a liner stop block within an existing combustor, the pre-existing liner stop block must be removed from the flow sleeve, which can present several problems. In particular, removal of the existing liner stop block requires that a maintenance worker drill out the liner stop block from the flow sleeve, which can be a very labor intensive and timing consuming process. Moreover, removal of the original stop block effectively eliminates any of the locating features that were incorporated into the original design for aligning the liner stop block to the flow sleeve. As such, installation of the new liner stop block is often more difficult and can lead to misalignment of the liner stop block to the flow sleeve. Furthermore, both the existing and replacement liner stop blocks are often formed from relatively expensive alloys. As such, completely replacing a liner stop block can result in increased material costs.

[0006] Accordingly, a combustion liner stop block having insertable wear features and a method for installing such features within a liner stop block would be welcomed in the technology.

BRIEF DESCRIPTION OF THE INVENTION

[0007] Aspects and advantages of the invention will be set forth in part in the following description, or may be obvious from the description, or may be learned through practice of the invention.

[0008] In one aspect, the present subject matter discloses methods for installing wear features within a combustion liner stop block. The methods may generally include enlarging a slot defined in the liner stop block to form a cavity, locating an insert block in the cavity and providing at least one wear feature associated with the insert block.

[0009] In another aspect, the present subject matter discloses a combustion liner stop block for a combustor. The liner stop block may generally include an outer block defining a cavity and an insert block disposed in the cavity. The insert block may define a channel configured to receive a mating component of the liner stop block. Additionally, the liner stop block may include at least one wear feature associated with the insert block.

[0010] In a further aspect, the present subject matter discloses a combustor including a combustion casing, a flow sleeve and a combustion liner substantially concentrically arranged within the flow sleeve. The combustor may also include at least one liner stop tab secured to one of i) the flow sleeve ii) the combustion liner and iii) the combustion casing and at least one liner stop block secured to one other of i) the flow sleeve, ii) the combustion liner and iii) the combustion casing. The liner stop block may generally be configured to engage the liner stop tap. Additionally, the liner stop block may include an outer block defining a cavity, an insert block disposed in the cavity and at least one wear feature associated with the insert block.

[0011] These and other features, aspects and advantages of the present invention will become better understood with reference to the following description and appended claims. The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] A full and enabling disclosure of the present invention, including the best mode thereof, directed to one of ordinary skill in the art, is set forth in the specification, which makes reference to the appended figures, in which:

[0013] FIG. **1** illustrates a cross-sectional side view of an embodiment of a gas turbine combustor;

[0014] FIG. **2** illustrates a perspective view of embodiments of a combustion liner stop block and a combustion liner stop tab;

[0015] FIG. **3** illustrates a flow chart providing one embodiment of a method for installing wear features within a combustion liner stop block in accordance with aspects of the present subject matter;

[0016] FIG. **4** illustrates a perspective view of embodiments of a combustion liner stop block and an insert block that may be inserted into the liner stop block in accordance with aspects of the present subject matter;

[0017] FIG. **5** illustrates a perspective view of the embodiments of the combustion liner stop block and the insert block shown in FIG. **4**, particularly illustrating the insert block defining an elongated channel and being secured within the liner stop block in accordance with aspects of the present subject matter;

[0018] FIG. **6** illustrates a perspective view of an embodiment of a wear feature that may be inserted into an embodiment of an insert block in accordance with aspects of the present subject matter; and

[0019] FIG. **7** illustrates a perspective view of one embodiment of an assembled combustion liner stop block including insertable wear features in accordance with aspects of the present subject matter.

DETAILED DESCRIPTION OF THE INVENTION

[0020] Reference now will be made in detail to embodiments of the invention, one or more examples of which are illustrated in the drawings. Each example is provided by way of explanation of the invention, not limitation of the invention. In fact, it will be apparent to those skilled in the art that various modifications and variations can be made in the present invention without departing from the scope or spirit of the invention. For instance, features illustrated or described as part of one embodiment can be used with another embodiment to yield a still further embodiment. Thus, it is intended that the present invention covers such modifications and variations as come within the scope of the appended claims and their equivalents.

[0021] The present subject matter is generally directed to a combustion liner stop block including insertable wear features and a method for installing such wear features within a liner stop block. For example, the disclosed liner stop block generally includes an insert block having one or more associated wear features configured to reduce the amount of wear occurring between the liner stop block and the liner stop tab. By associating such wear features with the disclosed insert block, the need to replace the original liner stop block is eliminated. In particular, a cavity may be formed within the original stop block which is configured to receive the insert block and associated wear features. Accordingly, the costs associated with removing the liner stop block, such as labor and material costs, can be eliminated. Additionally, by utilizing the original liner stop block, the precise location of the stop block achieved during original installation may be maintained. Moreover, the insert block of the present subject matter may be configured to have a standardized size and/or shape such that it may be used in a wide range of different gas turbines having liner stop blocks including varying sizes, shapes and/or configurations.

[0022] Referring now to the drawings, FIG. **1** illustrates a cross-sectional side view of an embodiment of a gas turbine combustor **20**. The combustor **20** may generally include a substantially cylindrical combustion casing **22** secured to a portion of a gas turbine casing **24**, such as a compressor discharge casing or a combustion wrapper casing. The combustor **20** may also include an internal flow sleeve **26** and a combustion liner **28** substantially concentrically arranged within the flow sleeve **26**. Both the flow sleeve **26** and the combustion liner **28** may extend, at their downstream ends, to a double walled transition duct, including an impingement sleeve **30** and a transition piece **32** disposed within the impingement sleeve **30**. However, it should be appreciated that some gas turbines may only include a single-wall transition duct. Additionally, the impingement sleeve **30** and the flow sleeve **26** may be provided with a plurality of air supply holes **34** over a portion of their surfaces, thereby permitting pressurized air from the compressor section of a gas turbine to enter the radial space between the combustion liner **28** and the flow sleeve **26**.

[0023] The combustion liner **28** of the combustor **20** may generally define a substantially cylindrical combustion chamber **36**, wherein fuel and air are injected and combusted to produce hot gases of combustion. Additionally, the combustion liner **28** may be coupled at its downstream end to the transition piece **32** such that the combustion liner **28** and the transition piece **32** generally define a flow path for the hot gases of combustion flowing from each combustor **20** to the turbine section of a gas turbine.

[0024] The combustion liner **28** may also include one or more male liner stop tabs **38** configured to mate with or otherwise engage one or more female liner stop blocks **40** secured to the flow sleeve **26** or, in some embodiments, the combustion casing **22**. In particular, the liner stop tabs **38** may be adapted to slide into an elongated slot **52** (FIG. **2**) defined within the liner stop blocks **40** as the combustion liner **28** is installed in the combustor **20** so as to ensure proper circumferential alignment of the liner **28** within the flow sleeve **26**. Additionally, the liner stops **38**, **40** may be also utilized to indicate the proper installation depth of the combustion liner **28** as well as prevent rotation and/or axial movement of the liner **28** during operation of the combustor **20**. It should be appreciated that, in alternative embodiments, the liner stops tabs **38** may be disposed on the flow sleeve **26** or the combustion casing **22** while the liner stop blocks **40** may be disposed on the combustion liner **28**.

[0025] Referring now to FIG. **2**, perspective views of embodiments of a combustion liner stop tab **38** and combustion liner stop block **40** are illustrated. Generally, the liner stop block **40** may be secured to an inner surface **42** of the flow sleeve **26**. However, as indicated above, in some embodiments, the liner stop block **40** may be secured to an inner surface of the combustion casing **22**. Additionally, the liner stop tab **38** may be secured to an outer surface **44** of the combustion liner **28**. It should be appreciated that the liner stop block **40** and stop tab **38** may be secured to the flow sleeve **26** and combustion liner **28**, respectively, using any suitable means known in the art. For example, as shown in FIG. **2**, the liner stop block **40** may be welded to the inner surface **42** of the flow sleeve **26**. The liner stop block **40** may also include a pin, rod or other mounting feature (not illustrated) extending through the flow sleeve **26** to provide a further attachment mechanism between the stop block **40** and the flow sleeve **26**. Similarly, the liner stop tab **38** may be welded to the outer surface **44** of the combustion liner **28**. However, it should be appreciated that, in alternative embodiments, the liner stops **38**,**40** may be secured to their respective

combustor components using a suitable attachment mechanism, such as by using screws, bolts or any other known mechanical fastener.

[0026] In general, it should be appreciated that the liner stop block **40** and the liner stop tab **38** may be designed to have any suitable shape and/or configuration that enables the liner stop tab **38** to mate and/or engage with the liner stop block **40** so as to facilitate installation of the combustion liner **28** and/or to properly align the combustion liner **28** within the flow sleeve **26** (or combustion casing **22**) and/or to prevent rotation and/or axial movement of the liner **28** during operation of the combustor **20**. For example, in the embodiment illustrated in FIG. **2**, the liner stop block **40** may comprise a substantially planar or flat end **46**, a rounded or curved end **48**, and a pair of side walls **50** extending between the flat end **46** and the curved end **48**. The liner stop block **40** may also define an elongated slot **52** configured to receive the liner stop tab **38**. The elongated slot **52** may generally be defined from the flat end **46** of the liner stop block **40** and may extend in the direction of the curved end **48**. Additionally, as shown in FIG. **2**, the liner stop tab **38** may generally comprise a base **54** and a substantially rectangular protrusion **56** extending from the base **54** such that the liner stop tab **38** may slide into and engage the liner stop block **40** as the combustion liner **28** is installed within the flow sleeve **26**. It should be appreciated that, although a single set of liner stops **38**,**40** is illustrated in FIG. **2**, two, three or more sets of liner stops **38**,**40** may be included within each combustor **20**.

[0027] As indicated above, the present subject matter is generally directed to a liner stop block having insertable wear features and a method for installing wear features within a liner stop block. Thus, one embodiment of the disclosed method will generally be described with reference to FIG. **3** and will be explained in greater detail with reference to FIGS. **4**-**7**. Additionally, various embodiments of the disclosed liner stop block will also be described with reference to FIGS. **4**-**7**.

[0028] Thus, referring to FIG. **3**, one embodiment of a method for installing wear features within a combustion liner stop block is illustrated. Generally, the method includes enlarging a slot defined in the liner stop block to form a cavity **302**, locating an insert block in the cavity **304** and providing at least one wear feature associated with the insert block **306**. As indicated above, the disclosed method may generally permit wear features to be installed within a liner stop block without necessitating the removal of the existing stop block. As such, the method will generally be described herein with reference to installing wear features into new and used liner stop blocks that were not originally designed to include such features. However, it should be appreciated that the disclosed method may also be used to quickly and efficiently install new wear features into liner stop blocks that did, in fact, initially include one or more wear features. It should also be appreciated that, although the various elements **302**, **304**, **306** of the disclosed method are illustrated in a particular order in FIG. **3**, the elements may generally be performed in any sequence and/or order consistent with the disclosure provided herein.

[0029] Referring now to FIG. **4**, there is illustrated perspective views of embodiments of a liner stop block **40** attached to a portion of a flow sleeve **26** of a combustor **20** (FIG. **1**). In particular, FIG. **4** illustrates embodiments of the liner stop block **40** before and after it has been enlarged to define a cavity **60** in accordance with aspects of the present subject matter. Thus, initially, the liner stop block **40** may generally define an elongated slot **52** which, as indicated above, may be configured to accommodate a corresponding liner stop tab **38** (FIG. **2**). However, as shown in FIG. **4**, an enlarged cavity **60** may be formed within the liner stop block **40** by machining or otherwise removing material from the stop block **40** in the area adjacent to the elongated slot **52**. Accordingly, in one embodiment, the cavity **60** may define a larger volume than the volume defined by the elongated slot **52**. In general, the cavity **60** may be formed in the liner stop block **40** such that an insert block **62** may be inserted into or otherwise disposed within the cavity **60**. As such, the liner stop block **40** may generally serve as an outer block **64** for receiving the insert block **62**. It should be appreciated that the cavity **60** may be formed using any suitable means known in the art. For example, various known machining processes, such as milling processes, drilling processes, other precision machining processes and the like, may be utilized to form the cavity **60** within the liner stop block **40**.

[0030] In general, the insert block **62** and cavity **60** may be designed to have any suitable shape and/or configuration that permits such components to function as described herein. For example, in one embodiment, the insert block **62** may be configured substantially similar to that of the liner stop block **40**. Thus, in the illustrated embodiment, the insert block **62** may include a substantially planar or flat end **66**, a rounded or curved end **68**, and a pair of side walls **70** extending between the flat end **66** and the curved end **68**. Additionally, as shown in FIG. **4**, the cavity **60** may define a corresponding shape so that the insert block **62** may be received therein. However, in alternative embodiments, it should be appreciated that the insert block **62** and corresponding cavity **60** may be substantially rectangular in shape or may otherwise define any other suitable shapes and/or cross-sections. It should also be appreciated that the insert block **62** may generally be formed from any suitable material. However, in a particular embodiment, the insert block **62** may be formed from a relatively inexpensive metal, such as carbon steel.

[0031] Referring still to FIG. **4**, the insert block **62** may also be configured to be secured within the cavity **60** using any suitable means known in the art. For example in one embodiment, the insert block **62** may be configured to be welded to the liner stop block **40**. In such an embodiment, the insert block **62** may define one or more weld preparation features configured to aid in welding the insert block **62** to the liner stop block **40**. For instance, as shown, the insert block **62** may define a chamfered or beveled edge **72** along portions of its outer perimeter. Other suitable weld preparation features may include grooves, ridges, notches, and the like. In alternative embodiments, the insert block **62** may be configured to be secured within the cavity **60** using mechanical fasteners, such as by using bolts or screws, or using any other suitable attachment mechanisms and/or processes known the art. Additionally, it should be appreciated that, when inserted into the liner stop block **40**, the insert block **62** need not be configured as a blank (e.g., a solid block of material) as is illustrated in FIG. **4**. For example, in alternative embodiments, the insert block **62** may include machined features, such as the channel **74** and/or recessed area **76** described with reference to FIGS. **5** and **6**, and/or may include one or more wear features prior to being inserted into the liner stop block **40**.

[0032] Referring now to FIG. **5**, there is illustrated a perspective view of one embodiment of the insert block **62** secured within the cavity **60** of the liner stop block **40**. In particular, the insert block **62** is shown as being welded to the liner stop block **40** along the beveled edge **72** defined at the

interface of the insert block **62** and the liner stop block **40**. Moreover, as shown in FIG. **5**, a channel **74** may be formed within the insert block **62** such that the liner stop tab **38** (FIG. **2**) of the combustion liner **28** may be received within the channel **74** as the combustion liner **28** is installed within the flow sleeve **26**. In general, it should be appreciated that the channel **74** may be formed within the insert block **62** so as to define any suitable shape and/or cross-section. However, in a particular embodiment of the present subject matter, the channel **74** may define the same size, shape and/or dimensions as the elongated slot **52** (FIG. **4**) defined within the liner stop block **40**.

[0033] It should be appreciated that the channel **74** may be formed using any suitable means. For example, various known machining processes, such as milling processes, drilling processes, other precision machining processes and the like, may be utilized to form the channel **74** within the insert block **62**. Additionally, as indicated above, the channel **74** may be formed before or after the insert block **62** is inserted into and/or secured to the liner stop block **40**. For example, the insert block **62** may be pre-machined or otherwise formed (e.g., by a molding process) so that the channel **74** is defined within the insert block **62** prior to the block **62** being inserted into the liner stop block **40**.

[0034] Referring now to FIG. **6**, there is illustrated one embodiment of a wear feature that may be included within the insert block **62** in accordance with aspects of the present subject matter. As shown, the wear feature comprises a wear shim or wear strip **78** that may generally be configured to reduce the amount of wear occurring between the liner stop block **40** and the liner stop tab **38**. In particular, the wear strip **78** may be formed from any suitable wear-resistant material capable of preventing or reducing wear between the liner stop block **40** and the liner stop tab **38**. For example, suitable materials that may be used to form the wear strip **78** may include cobalt-based alloys, such as FSX-14 and L-605, nickel-based alloys, other hardwearing/hardfacing materials, and the like.

[0035] In an alternative embodiment, it should be appreciated that the wear feature of the present subject matter may comprise a wear resistant coating that may be applied to the surface of the channel **74** defined in the insert block **62** using any suitable process, such as by welding, metal spraying, thermal spraying, diffusion processes, and the like. Suitable wear resistant coatings may include, but are not limited to, coatings comprising one or more of the following materials: chromium carbide, tungsten, cobalt, STELLITE 6 alloy, any suitable hardwearing/hardfacing material, and/or any other materials that, when applied to the channel **74**, may increase the wear resistance of the insert block **62**. In another embodiment, the entire insert block **62** may be formed from a wear resistant material. In such an embodiment, the insert block **62**, itself, may serve as the wear feature of the present subject matter. Suitable wear resistant materials may include cobalt-based alloys, such as FSX-14 and L-605, nickel-based alloys, other hardwearing/hardfacing materials, and the like.

[0036] Referring still to FIG. **6**, in embodiments in which the wear feature comprises a wear strip **78**, the wear strip **78** may generally be configured to have any suitable shape and/or configuration that permits the strip **78** to be inserted into or otherwise disposed within the insert block **62**. The wear strip **78** may also be configured so as to define an elongated opening **80**. For example, in one embodiment, the opening **80** may be substantially shaped, sized and/or dimensioned similarly to the channel **74** defined within the insert block **62** and/or the slot **52** (FIG. **4**) defined within the liner stop block **40**. As such, it should be appreciated that the opening **80** may be adapted to engage with or otherwise receive the liner stop tab **38** (FIG. **2**) of the combustion liner **28** as the combustion liner **28** is installed within the flow sleeve **26**. Accordingly, the wear strip **78** may generally serve as the interface between the insert block **62** and the liner stop tab **38** and, thus, may reduce the amount of wear occurring between the liner stop block **40** and the liner stop tab **38** during operation of the combustor **20**.

[0037] Moreover, in one embodiment, a recessed area **76** may be defined within the channel **74** of the insert block **62** and may be configured to accommodate the wear strip **78**. Thus as shown in FIG. **6**, a recessed area **76** may be formed within the insert block **62** by machining or otherwise removing material from the insert block **62** such that at least a portion of the channel **74** is enlarged or otherwise widened. In one embodiment, the recessed area **76** may generally be shaped, sized or otherwise configured to have substantially the same shape, size and/or dimensions of the wear strip **78**. For example, as shown in FIG. **7**, the recessed area **76** may be formed so that, when the wear strip **78** is inserted into insert block **62**, the wear strip **78** is positioned substantially flush with the portion of the channel **74** not enlarged or otherwise widened by the formation of the recessed area **76**. It should be appreciated that the recessed area **76** may be formed using any suitable means. For example, various known machining processes, such as milling processes, drilling processes, other precision machining processes and the like, may be utilized to form the recessed area **76** within the insert block **62**. It should also be appreciated that, in alternative embodiments, a recessed area **76** need not be defined within insert block **62**. For example, the channel **74** may be formed within the insert block **62** so as to define appropriate dimensions for receiving the wear strip **78**.

[0038] Referring now to FIG. **7**, there is illustrated one embodiment of an assembled combustion liner stop block **40** having insertable wear features in accordance with aspects of the present subject matter. As shown, the combustion liner stop block **40** generally includes an outer block **64**, an insert block **62** and a wear strip **78**, each of which may generally be configured as described above. Thus, the outer block **64** may be configured to be secured to a portion of the flow sleeve **26**, or, as the case may be, the combustion casing **22** of a combustor **20** (FIG. **1**). Additionally, the outer block **64** may generally define a cavity **60** (FIG. **4**) for receiving the insert block **62**. As shown, the insert block **62** may generally include a recessed area **76** (FIG. **6**) within a channel **74** for receiving the wear strip **78**. Further, the wear strip **78** may be configured to fit within the recessed area **76** and may define an elongated opening **80** configured to receive the liner stop tab **38** (FIG. **2**) of the combustion liner **28**. As such, the wear strip **78** may serve as the interface between the liner stop block **40** and the liner stop tab **38** and, thus, may reduce the amount of wear occurring between such components.

[0039] This written description uses examples to disclose the invention, including the best mode, and also to enable any person skilled in the art to practice the invention, including making and using any devices or systems and performing any incorporated methods. The patentable scope of the invention is defined by the claims, and may include other examples that occur to those skilled in the art. Such other examples are intended to be within the scope of the claims if they include structural elements that do not differ from the literal language

of the claims, or if they include equivalent structural elements with insubstantial differences from the literal languages of the claims.

What is claimed is:

1. A method for installing wear features within a combustion liner stop block defining a slot configured to receive a combustion liner stop tab, the method comprising:

enlarging the slot defined in the liner stop block to form a cavity;

locating an insert block in the cavity; and

providing at least one wear feature associated with the insert block.

2. The method of claim **1**, further comprising forming a channel in the insert block before or after the insert block is located in the cavity.

3. The method of claim **2**, wherein the channel has substantially the same dimensions as the slot defined in the liner stop block so that the liner stop tab may be received within the channel.

4. The method of claim **2**, further comprising inserting the at least one wear feature in the channel before or after the insert block is located in the cavity.

5. The method of claim **2**, further comprising modifying the channel to form a recessed area in the insert block.

6. The method of claim **5**, wherein the at least one wear feature is disposed in the recessed area.

7. The method of claim **1**, wherein the at least one wear feature comprises a wear strip, the wear strip being formed from a wear resistant material.

8. The method of claim **7**, wherein the wear strip is disposed within the insert block such that the liner stop tab contacts the wear strip when the liner stop tab is received in the liner stop block.

9. The method of claim **1**, wherein the at least one wear feature comprises a wear resistant coating applied to the insert block.

10. The method of claim **1**, further comprising securing the insert block to the liner stop block.

11. The method of claim **10**, wherein securing the insert block to the liner stop block comprises welding the insert block to the liner stop block, the insert block defining at least one weld preparation feature at an interface of the insert block and the liner stop block

12. A liner stop block for a combustor, the liner stop block comprising:

an outer block defining a cavity;

an insert block disposed in the cavity, the insert block defining a channel configured to receive a mating component of the liner stop block; and

at least one wear feature associated with the insert block.

13. The liner stop block of claim **12**, wherein the at least one wear feature comprises a wear strip, the wear strip being formed from a wear-resistant material.

14. The liner stop block of claim **13**, wherein the insert block further defines a recessed area within the channel, the wear strip being disposed in the recessed area.

15. The liner stop block of claim **12**, wherein the at least one wear feature comprises a wear resistant coating applied to the channel.

16. The liner stop block of claim **12**, wherein the insert block defines at least one weld preparation feature.

17. A combustor, comprising:

a combustion casing;

a flow sleeve at least partially disposed within the combustion casing;

a combustion liner substantially concentrically arranged within the flow sleeve;

at least one liner stop tab secured to one of i) the flow sleeve ii) the combustion liner and iii) the combustion casing; and

at least one liner stop block secured to one other of i) the flow sleeve ii) the combustion liner and iii) the combustion casing, the at least one liner stop block being configured to engage the at least one liner stop tab, the liner stop block comprising:

an outer block defining a cavity;

an insert block disposed in the cavity, the insert block defining a channel configured to receive the at least one liner stop tab; and

at least one wear feature associated with the insert block.

18. The liner stop block of claim **17**, wherein the at least one wear feature comprises a wear strip, the wear strip being formed from a wear-resistant material.

19. The liner stop block of claim **18**, wherein the insert block further defines a recessed area within the channel, the wear strip being disposed in the recessed area.

20. The liner stop block of claim **17**, wherein the at least one wear feature comprises a wear resistant coating applied to the channel.

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